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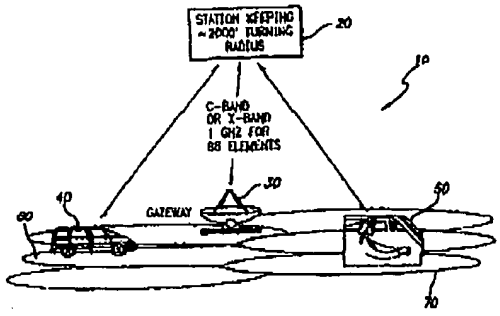
(54) Title: MICRO CELL ARCHITECTURE FOR MOBILE USER TRACKING COMMUNICATION SYSTEM



(57) Abstract: A system and method for tracking a user. The system is adapted for use in a wireless communication system and creates a plurality of beams within a coverage area. A first beam is directed at a user in a first microcell and a number of additional beams illuminate microcells immediately adjacent the first microcell. The system is equipped with a mechanism for detecting movement of the user from the first microcell to one of the immediately adjacent microcells. On the detection of movement of the user, the system redirects the first beam from the first microcell to a second microcell, the second microcell being one of the adjacent microcells. In the illustrative embodiment. The system is implemented in a stratospheric platform based communication system including a hub adapted to communicate with a stratospheric platform. A transceiver and a phased array antenna are disposed on the platform to communicate with the hub and with the user. A second antenna is provided on the platform to communicate with the hub. Beamforming and direction are implemented on the hub and communicated to the platform. The user's position is detected with a global positioning system receiver, by measuring the strength of a signal received from the user, or by other suitable means. On detection of user movement from the first microcell, the beamforming system redirects the beam to follow the user into a second microcell. Additional beams around the user's microcell are illuminated to facilitate detection of the users movement.

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